Envisioning Futures for the Sacramento-San Joaquin Delta

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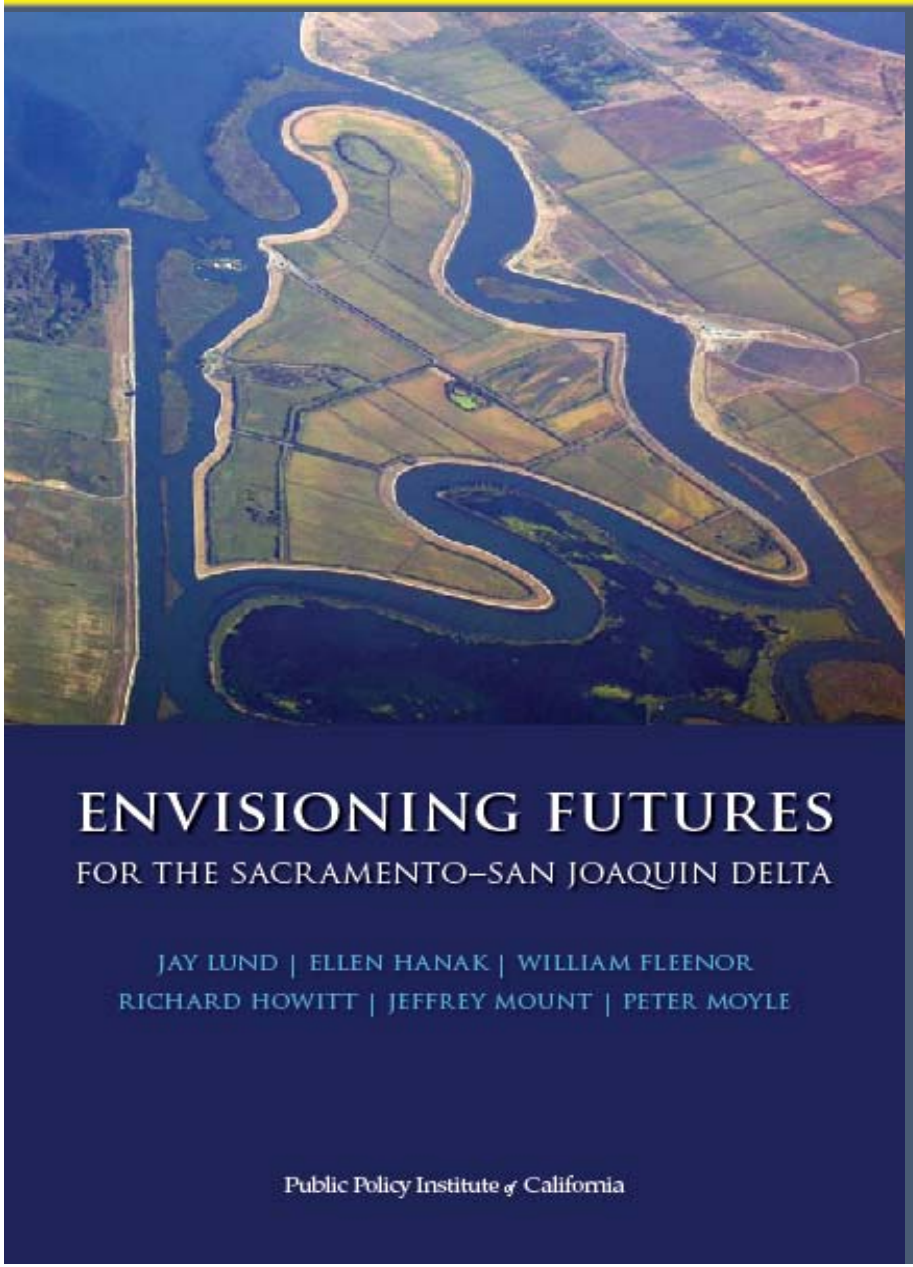
Authored by Interdisciplinary Team



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Why the Delta Matters to Californians

Water Supply

Agriculture

Ecosystem

Infrastructure

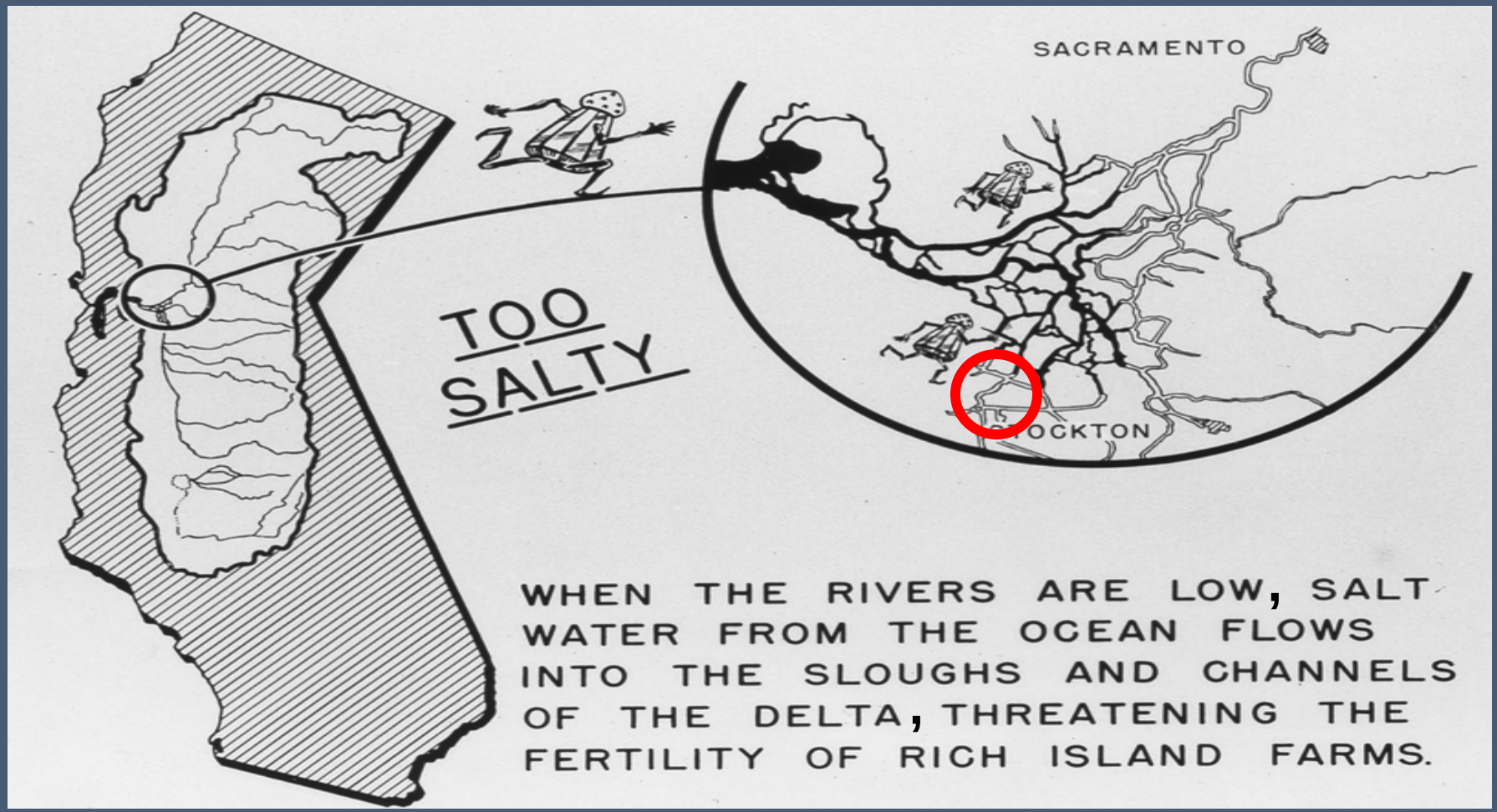
Recreation

Housing

Major Themes

1. Current Delta is unsustainable for almost all stakeholders
2. Improved understanding of the Delta provides opportunities for new solutions
3. Promising alternatives exist

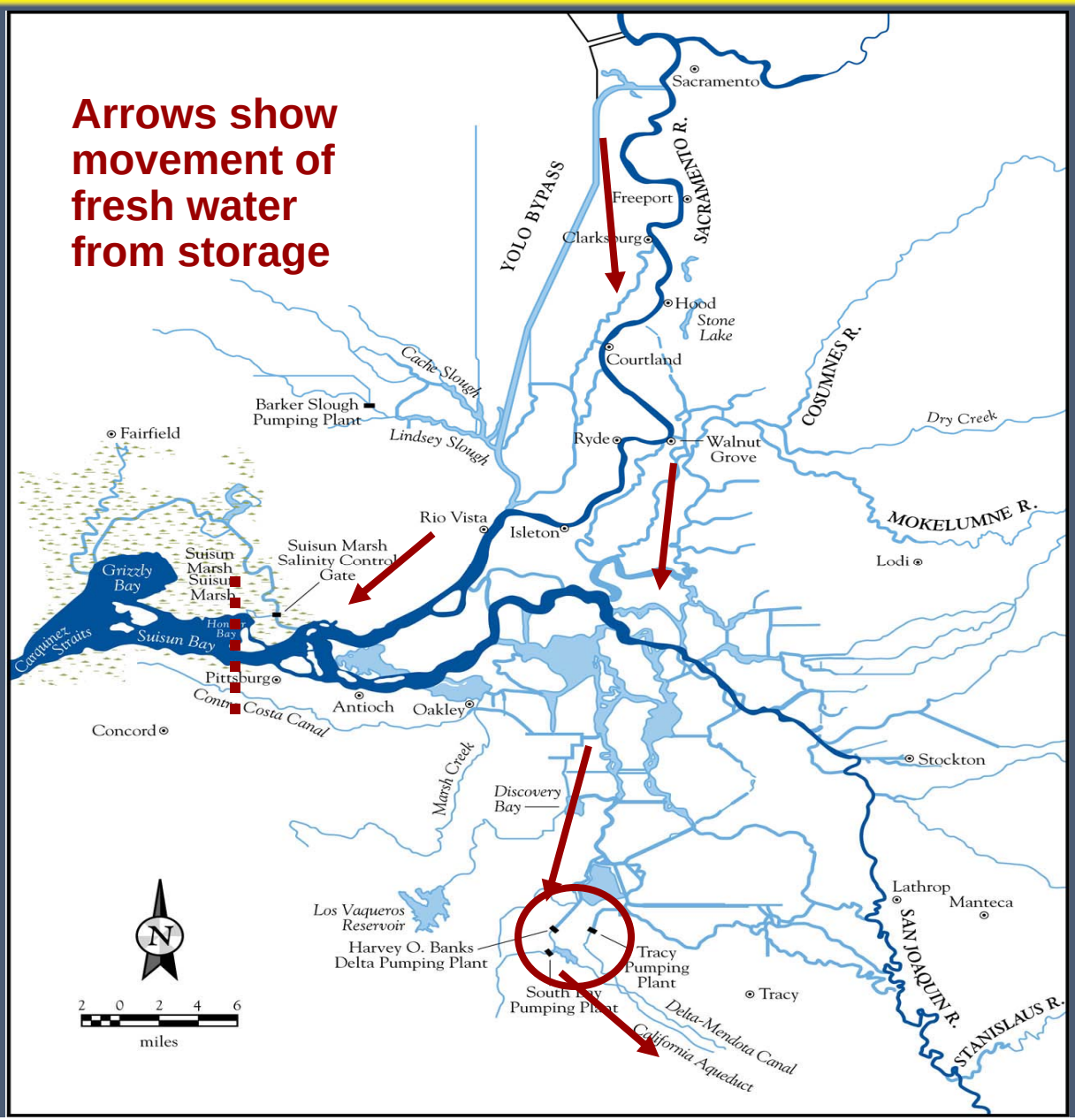
Since 1920s, California Policy Has Aimed to Keep the Delta Fresh



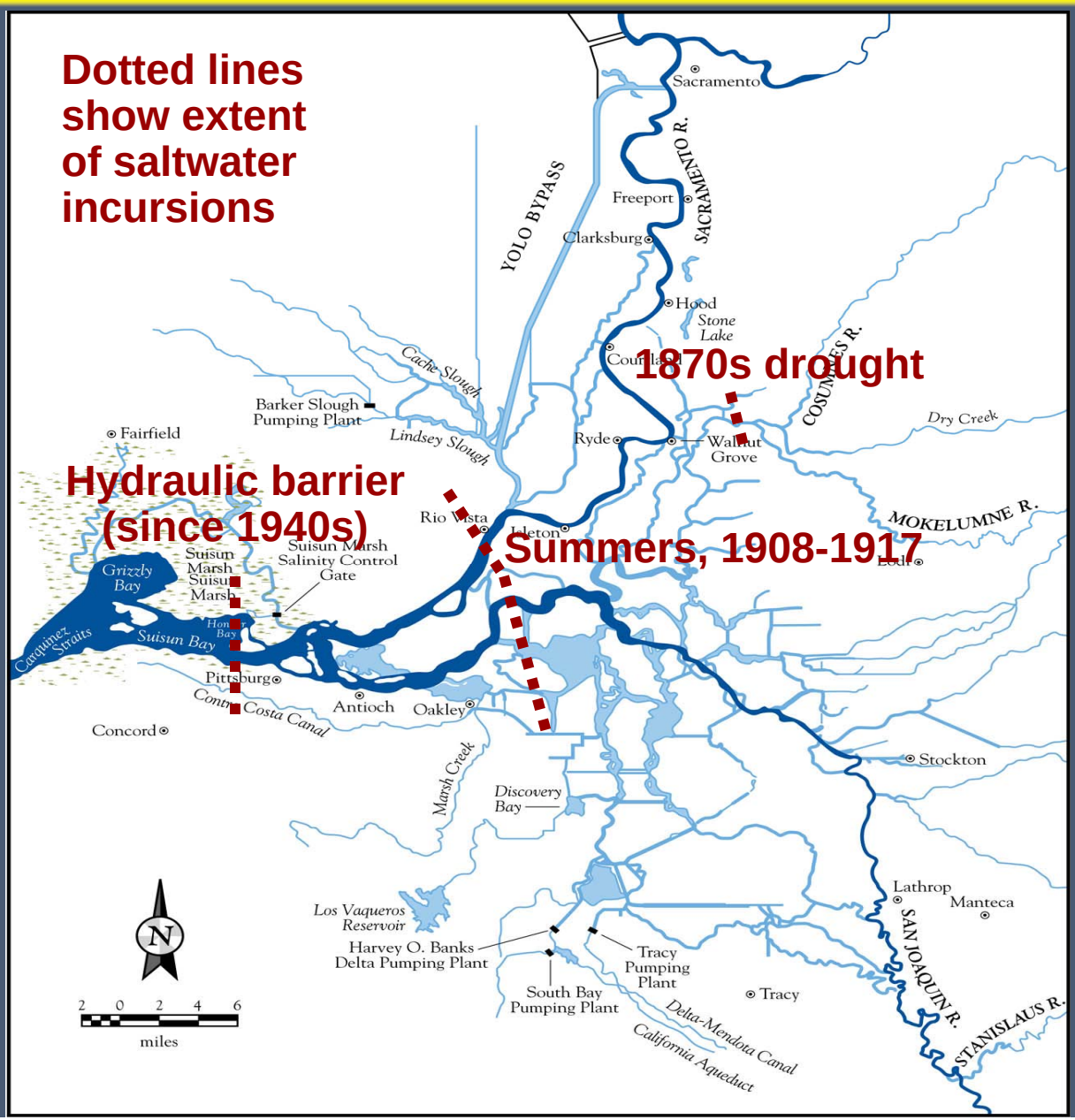
1945 USBR report

- Delta farmers and water exporters benefit from low salinity

In 1940s, Central Valley Project Created "Hydraulic Barrier" for Water Exports



Hydraulic Barrier Prevents Seasonal and Dry-year Salinity Incursions



But Static, Freshwater Delta Not Good for Native Species

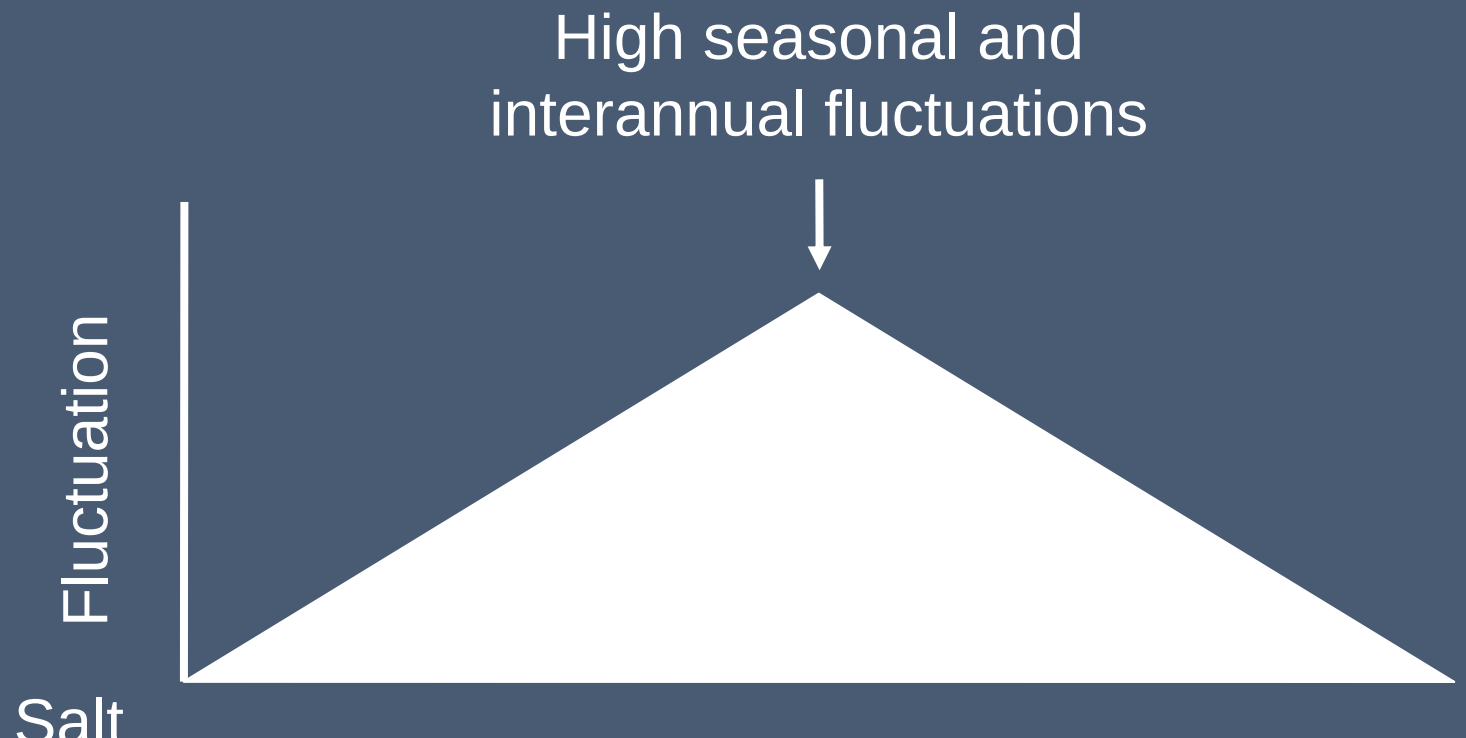
- Native species evolved in a fluctuating Delta
- Alien species have taken hold and harm native species
- Alien species do best with constant salinity (fresh or saline)
- Restoring fluctuating conditions may be key to native species' survival

Asiatic clam

Brazilian waterweed

Overbite clam

Desirable and Undesirable Species In A Salinity Gradient With Seasonal and Annual Fluctuations



Anchovy
Surf perches
Marine fish

Overbite clam
Siberian prawn
Jellyfish

Delta smelt
Striped bass
Longfin smelt
Splittail
Mysid shrimp
Tule perch

Largemouth bass
Bluegill
B. waterweed
Water hyacinth
Asian clam

Nine Delta Alternatives

- Freshwater Delta
  - Two levee-based alternatives
  - Physical salinity barrier
- Fluctuating Delta
  - Two peripheral canal alternatives
  - Armored-island aqueduct
- Reduced-exports Delta (*also fluctuating)
  - Opportunistic Delta*
  - Eco-Delta*
  - Abandoned Delta

Fluctuating Delta Alternatives Are Most Promising

Alternatives	Environmental Performance	Annual Water Exports	Economic and Financial Costs
1. Levees as Usual	Poor	0 – 6+ maf	~$2 Billion + failures
2. Fortress Delta	Poor	6+ maf	> $4 Billion + lost islands
3. Saltwater Barrier	Poor		$2 – 3 Billion + lost islands
4. Peripheral Canal Plus	Promising - allows Delta to fluctuate		$2 – 3 Billion + < $70 M/year
5. South Delta Aqueduct			$2 – 3 Billion + < $41 M/year
6. Armored-Island Aqueduct	Mixed		$1 – 2 Billion + < $30 M/year
7. Opportunistic Delta	Promising	2 – 8 maf	$0.7 – 2.2 Billion + < $170 M/year
8. Eco-Delta	Best?	1 – 5 maf	Several $ Billion + < $600 M/year
9. Abandoned Delta	Poor	0	$500 Million + ~$1.2 Billion/year

Steps Needed for a Long-term Solution

- Focus on promising alternatives
- Create technical track to explore solutions with problem-solving R&D
- Enhance regional and statewide representation in Delta land use decisions (e.g. SF BCDC)
- Implement “beneficiaries pay” financing
- Establish mitigation mechanisms – everyone will *not* “get better together”

“No Regrets” Short-term Actions

- Emergency preparedness
- “Do not resuscitate” list for some islands
- Delta land use
  - Flood control guidelines for urbanization
  - Habitat protection
- Restoration projects for pelagic fish habitat

Questions?

- For the full report, research brief, and other materials, go to: www.ppic.org